

MISCELLANEOUS NOTES ON NEOTROPICAL FLORA, X.

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The present notes include descriptions of three species of *Espeletia*, two of *Paragynoxys* (Compositae), and a key for easy distinction and identification of the six sessile, small-size Venezuelan species of *Espeletia*. Also a new combination for a species of *Malpighia* is given. For previous contributions of this series see *PHYTOLOGIA* 38(1): 7. 1977. The basic work for these notes has been partially supported by the National Science Foundation Grant No. DEB72-01839.

EPELETIA CUNICULORUM Cuatr. sp. nov.

Caulirosula visu alba circa 50 cm alta, trunco brevi cum foliis marcescentibus spisse obtecto. Gemma terminalis albissima densissime crasseque lanato-sericea.

Folia coriacea crassiuscula albo-lanata sessilis 44-50 cm longa. Lamina linearis 40-45 x 2-3 cm, ratio 13.5-22:1, sursum in apicem acutum angustata, deorsum leviter, sine sensu, basin versus attenuata (1.2-1.7 mm minima latitudine), basi cuneato-ampliata et in vaginam producta, margine integra anguste revoluta; adaxiale superficie leviter rugulosa venulis parum impressis sed costa subplana canaliculata striolulata bene notata, juvenilia densissime lanato-villosa subsericea pilis longis (10 mm) basi crispis ceterum ascendentibus, insuper barbis villosis-subsericeis instructis ad costam densissimis adpressis magis sericeis, in adulta pilis brevioribus indumentum albo-crispo-lanatum densum et crassiusculum formantibus; abaxiale, costa elevata robusta striata basin versus gradatim ampliata et incrassata cum pilis circa 10 mm basi crispis ceterum ascendentibus insuper indumento visu villosis-sericeo tecta, nervis secundariis infra indumentum prominentibus, 4-7 mm inter se distantibus fere patulis angulo 55-65° ascendentibus circa marginem furcatis et cum nervulis venulisque in reticulum anastomosantibus, reticulo elevato alveolis moderate profundis dense albo pilosulis, in juvenile statu superficie tota cum indumento lanato villosis-barbato omnino occulta, in adulta indumento villosis-lanato valde copioso sed nervatione magis induta magis notata. Vagina robusta oblonga vel oblongo-semiovata basi latiora, 3.5-4 x 2.5-4 cm, costa in dimidia distale parte valde evoluta ad 14 mm lata et satis crassa; adaxiale sursum ad costam dense barbata reliqua glabra paralleli-nervata, abaxiale dense sericeo-barbata pilis ad 12 mm longis.

Synflorescentiae thyrsoides axillares rosula foliorum duplo longiores. Axis 80-110 cm longus, robustus, striatus, praecipue inferne fistulosus; pars proximalis vegetativa 1/2 totae longitudinis longior, duobus paribus foliorum sterilium instructa, inter-

nodio proximale circa 28 cm longo sequenti circa 17 cm, foliis angustis linearibus acutiusculis, infimis circa 6 cm supra basim nascentibus, 16-18 cm longis 1-1.2 cm latis cum vaginis 2.5 cm longis in tubum circa 8 mm longum coalitis, alteris foliis 9 x 1.2 cm etiam linearibus; pars fertilis ramosa circa 23 capitulis in 5-6 paribus ramorum oppositorum, vel suboppositis dispositis, internodiis quam ramis brevioribus longitudine sursum decrescentibus (sequentia e.g. 13, 7, 4.5, 3, 1.5 cm) pedicello terminali circa 3 cm longo. Rami proximales inferiores 3-capituliferi 12-14 cm longi, pedicellis circa 2.5 cm, sequentis 2-capituliferi 9, 6, 4.5 cm longis plus pedicellis 3-1.5 cm longis, ramis distalibus monocephalis 5-3 cm longis. Bracteae subtendentes inferiores anguste oblongae subacutae 8-4 cm longae, 1-0.6 cm latae oppositae sed non connatae, basi vaginanti adaxiale glabra, ceterae sursum lineares gradatim decrescentes 4-1.5 x 0.5-0.2 mm adaxiale apice excepto glabrae virides, ceterum in omnibus dense crasseque albedo-ochraceo vel pallide fulvescenti lanatae. Axis dense crasseque albo-gossypino-lanatus pilis longissimis, ad 15 mm, valde flexuosis in proximale parte crispis, extremis insuper plus minusve adpresse villosobarbatis. Rami pedicellique sicut involucri capitulorum, dense ochroleuco vel pallide fulvescente lanati. Basi axorum crassi robusti, densissime sericeo barbati pilis tenuibus rectis antrorsis ad 10 mm longis valde crebris adpressisque vestiti.

Capitula grandiuscula saepe cernua 290-320 flores ferentia, disco convexo brunnescenti vel luteolo 17-20 mm diam., circulo ligularum expanso 30-38 mm diam., ligulis luteis saepe valde contortis. Involucrum cupulatum dense ochroleuco-lanatum circa 25 mm diam., 1.3 cm altum. Phyllaria sterilia crasse herbacea firmula, circa 20 plus minusve 3-seriata 17-12 x (5-)4-2.5 mm introrsum gradatim decrescentia, anguste triangularia seu lineari-triangulata basi maxima latitudine sursum gradatim angustata apice acuta vel acutissima adaxiale acumine excepto glabra nervis paulo conspicuis abaxiale dense crispo-ochroleuco-lanata barbataque barbibus intricatis 3-4 mm longis phyllaria omnino occultantis. Phyllaria fertilia exteriora 12-9 x 2.5-2 mm, sterilia similia anguste elliptico-lanceolata acuminataque abaxiale dense antrorso-viloso-barbata pilis ad 2 mm, interiora tenuiora 7-6 x 1.8 mm subamplectentia lineari-lanceolata dorso apiceque dense villosa pilis 0.5-1.5 mm, marginibus glandulis teretibus 0.05 mm longis. Receptaculum plano convexum circa 10 mm diam., copiose hirtum pilis erectis acutis 0.3-0.6 mm. Paleae 6 x 1.8-2 mm scariosae basi incrassatae, amplectentes, ovaes apice attenuatae acutae inferne sparsis pilis sed costa protruda densiuscule pubescenti sicut dorso sursum densiuscule barbato, pilis antrorsis acutis 1 mm, marginibus glandulis patulis 0.05-0.07 mm longis.

Flores radii ligulati 110-120 in capitulo 3-4-seriati. Corolla lutea 14-15 mm longa, tubo crassiusculo 2-2.5 mm longo apice adaxiale dente minuto interdum liguli lineari ad 2 mm, dense villosa pilis hyalinis flexuosis crassiusculis obtusis vel acutiusculis, 0.2-0.7 mm, arcuato-antrorsis et sursum parvis vel raris glandulis ad 0.05 mm; lamina tenera linearis 1-1.5 mm lata, saepe plus minusve contorta, 4(-6) nervis subtus prominulis apice minute 2-dentata vel

integra, subobtusa, adaxiale papilloso-velutina abaxiale sparsis vel parcissimis glandulis 0.03-0.06 mm, sessilibus, inferne parce pilosula. Stylus circa 5 mm, ramis 1.5 mm longis. Achaenia brunnescentia, exteriora 2-2.2 x 1.2-1.3 mm, subpyriformia, triangulata apice rotundato basi argute acutata, dorso plano-incurvo, angulis acutissimis; interiora 2.2-2.3 x 1-0.9 mm, obovata basi acuta apice obtusa subquadrangulata dorse valde convexo protrudo, vel obtuse angulato.

Flores disci 180-204 in capitulo. Corolla lutea 6-6.3 mm longa, tubulo brevi, 2 mm longo basi excepto sparse piloso pilis acutiusculis vel obtusis antrorsis, 0.2-0.7 mm longis, limbo late tubuloso basi sparsis pilis, lobis triangularibus 0.7-0.9 mm altis marginibus incrassatis papillosis abaxiale sursum barbularis pilis 0.2-0.4 mm obtusis vel subobtusis et parcis vel raris glandulis obovatis 0.03-0.05 mm. Antherae 2 mm basis sigittatae appendice apicali ovata attenuata subobtusa 0.4 mm. Stylus 7 mm. Nectarium tubulosum circa 0.8 mm longum brevissime obtuseque dentatum.

Typus: Venezuela, Mérida: Sierra de la Culata: Páramo de Los Conejos en Cañada de los Puentes, 3350 m alt, 19 Oct 1972, Luis Ruiz-Terán 7722; holotypus, US; isotypus MERF.

Espeletia cuniculorum can be easily distinguished from its related Venezuelan species, *E. schultzii*, besides some other technical characters by its long, linear, acute leaves and the kind of indument.

EPELETIA BATATA Cuatr. sp. nov.

Rosula sessilis 15-30 cm ampla dense foliosa visu alba vel cinereo-lanata. Caulis subterraneus tuberculatus, tuberculo bulbi-formi depresso sphaeroidei vel ellipsoidei 3.5-6 (-10) cm diametro vel in vetusti statu elongato, subcylindraco truncato, irregulariter transverse striato, radicefero, 4-5 cm diam., usque 8 cm longo; distale inter folia dense patulo-hirto-barbato, pilis rectis acutis circa 5 mm longis. Radix centralis napiformis vel saepe in 2-4 ramis inaequalibus crassis descendentibus 10-20 cm longis divisa et radicibus lateralibus minoribus tenuioribus interdum magis longis munita. Gemma apicalis inter folia juvenilia valde congesta dense adpresseque lanato-villosa alba subsericea.

Folia brevia coriacea dense crasseque villosa-lanata visu alba vel cinerea 8-17 cm tota longitudine. Lamina oblonga vel linearis deorsum gradatim angustata sursum plus minusve dilatata saepe subspatulata apice obtusiusculo vel subite subacutato, 6.5-14.5 x (0.8-) 1-2 cm, ratio 5-12 (-15):1, supra basim 0.5-1 cm minima latitudine; margine leviter revoluta; adaxiale sublaevis costa vix notata indumento denso crispo-lanato insuper villosa-floccoso tecta, pilis basi patula robusta geniculatis spiralliter contortis intricatis extremis parallelis antrorsis; abaxiale costa elevata striato-sulcata, nervis secundariis prominulis 2-4 mm inter se distantibus angulo 40-60° ascendentibus cum nervis minoribus in reticulo minuto anastomosatis, alveolis ovalibus vel subpentagonalibus profundis cum pilis tenuissimis candidis repletis, ceterum dense longueque pilifera pilis longis basi patula reliqua parte 1-2-spiraliter

contorta, extremis ascendentibus subadpressis crasse vestimento villosolano lanuginoso instructis. Vagina coriacea oblonga vel leviter ovalis 1.6-2.5 cm longa 0.6-1.8 cm lata, adaxiale glabra, parallelinervata, longe dense adpresseque sericeo-barbata.

Inflorescentiae axillares scaposae monocephalae, plures, 5-20 in rosula, erectae vel curvato-ascendentes maturitate triplo vel multo rosularum folia excedentes. Axes 23-45 (-56) cm, moderate robusti, argute striati simplices extremo leviter arcuati capitulum inclinatum vel cernuum ferentes, 2-3 paribus foliorum oppositorum instructi. Folia sterilia proximalia 1-3 (-7) cm supra basim orientia, primo internodio (5-) 13-22 (-27) cm, altero 5-18 cm longo ultimo 5-22 cm longo pedunculo simulanti. Folia infima 3-8 cm longa opposita base vaginantia 1-2 cm tubum formantia, lamina 4-7 mm lata anguste oblonga vel oblanceolato-lineari, obtusiuscula; folia medialia breviora 2-3.5 cm longa 3-5 mm lata semper plus minusve longe vaginata tubo 0.5-1 mm alto. Folia distalia parcissima (1-3) opposita vel singula bracteosa 2.5-1.5 x 0.2-0.4 cm lineari attenuata acuta. Scapi dense lanati pilis longissimis crispis congestis fulvis vel brunnescentibus ad superficiem albis ascendentibus laxiuscule villosolano intricatis, ad summitates, infra capitulum, indumento crassiore instructis, foliis bracteisque etiam dense crispo-lanatis et longe albo-villosolano-gossypinis. Vaginae foliorum adaxiale glabrae nervatae, abaxiale densissime longeque albo-villosolano-barbatae. Basis scaporum infra folia infima et intra tubum vaginae densissime albo-sericeo-barbata pilis antrorsis rectis 5-8 mm longis congeste adpressis vestita.

Capitula fere grandia 209-402 flores ferentia, circulo ligularum 30-40 mm, disco 12-15 mm diam., involucri cupulato-campanulato 15-18 mm alto 18-24 mm diam., dense crasseque intricato-lanato barbatae. Phyllaria sterilia 20-26 circa triseriata, 6-8 exteriora (15-) 13-10 x 3-2.2 mm lanceolato-linearia vel subulato-linearia acuta, dense longeque undato-lanato-barbata, adaxiale apicem excepto glabra 3-5 nervata nitidaque. Phyllaria fertilia exteriora 10-8 (-7) x 1.6-1 mm oblongo-lanceolata acuta circa 5-7 nervata dorso sursum lanatissima et barbata, altera 75- x 1.8-1 subhyalina lance-oblonga acutata subamplectentia basim dorso imcrassata 5-3 nervata dorso villosa vel moderate longe pilosa, pilis 1.5 mm, apice piloso-ciliata. Receptaculum 11-15 mm diam., planum vel plano-convexum copiose hirsutum pilis erectis densiusculis acutis 2.8-1.5 (-2) mm longis. Paleae (5.3-) 6-7 x 1-2 mm oblongae apice acutatae, hyalinae plicato-amplectentes vel subamplectentes 3-7-nervatae sursum dorsale margineque parce glandulosae et barbatae pilis erectis circa 1 mm.

Flores radii ligulati 3-4 seriati 103-210 in capitulo. Corolla lutea 12-16 (-18) mm longa, tubo 1.8-2.6 mm longo angusto apice interiore annulari-incrassato adaxiale apice dente minimo obsito, dense patulo-pilosula pilis crassiusculis obtusiusculis flexuosis arcuato ascendentibus, 0.2-0.4 mm et praecipue sursum glandulis globosis minute stipitatis; lamina lineari vel lineari-oblanceolata sursum haud vel leviter ampliata apice subobtusolano breviter 2 (-3)-dentata, 1-1.2 (-1.7) mm lata, (3-) 4-5-nervata 2 nervis robustioribus, adaxiale minutissime papillosa extus basi sparsis pilis gland-

ulisque reliqua glabra. Stylus 4-6 mm, ramis 1-1.5 mm. Ovaria matura 1.7-2 x 1-1.2 mm obovato-oblonga triangulata dorso leviter convexo basi acutata, interiora 2 x 0.7-0.8, oblonga quadrangulata.

Flores disci 106-220 in capitulo. Corolla lutea 5.8-6.7 mm longa, tubulo 2-2.5 mm tantum subapicem parvis vel parvissimis pilis 0.2-0.4 mm longis, limbo tubuloso infundifuliformi tantum basi sparsis pilis et interdum parvis glandulis, dentibus triangularibus 0.7-0.9 mm marginibus papillosis abaxiale parvis glandulis sessilibus et sparsis vel raris pilis 0.2-0.4 (-0.6) mm. Antherae circa 2.4 (-3) mm longae basi breviter auriculatae appendicibus apicalibus oblongis 0.4-0.6 mm. Stylus 6-7 mm. Nectarium tubulosum 0.7-0.8 mm longum margine minute 5-dentatum saepe eroso-denticulatum. Ovarii rudimentum pediculiforme 0.2 mm longum.

Typus: Venezuela, Mérida: Sierra Nevada de Santo Domingo hacia Los Granates, Alto del Morato, páramo 3600 m alt., acaulirrósula, porte blanco, hojas blanco-grisáceas o cenicientas, ligulas amarillas, escapos monocéfalos, cormus tuberoso subterráneo, 10 Oct 1969, Cuatrecasas, Ruiz-Terán & López-Figueiras 28058; holotypus, US; isotypi US, MERF. Other collections: id Alto del Morato 3670 m, hojas blancas o blanco-verdosas, escapos purpúreos con lana blanca, involucro blanco-rucio, ligulas amarillas, 12 Oct 1969, Cuatrecasas, Ruiz-Terán & López-Figueiras 28081 (US, MERF); Piedra Agrietada, Páramo de Mucuchies en dirección a Piñango, 4300 m, acaulirrosuleto, escapos monocéfalos, predomina en zonas pedregosas y húmedas, 18 Nov 1970, Ruiz-Terán & López-Figueiras 1071 (US, MERF); Cabeceras del río Motatán, Páramo de Piñango, 4200 m, acaulirrosula, hojas verdeblanquecinas, escapos sepia claros monocéfalos, capítulos sepia, nutantes, cormus tuberculoso, 7 Oct 1969, Cuatrecasas, Ruiz-Terán & López-Figueiras 28036 (US, MERF); Páramo de Piñango, hoyo del río Chirurí, 3970 m, 8 Oct 1969, Cuatrecasas, Ruiz-Terán & López-Figueiras 28051 (US, MERF); Arriba de la Laguna Negra, 3800 m, Sep 1956, Aristeguieta 2645 (VEN).

Espeletia batata is closely related to *E. weddellii* and *E. nana*. They may be easily separated by the key that will follow.

EPELETIA NANA Cuatr. sp. nov.

Rosula sessilis 10-20 cm diametro crebre foliata visu albida siccitate ochroleuca. Caulis lignosis subterraneus tuberculatus, tuberculo depresso-ellipsoideo 2.5-4 cm diam. apice foliifero subplano ad centrum paulo depresso, inter folia dense hirtio-barbato pilis sericeis rectis patulis 5-6 mm, inferne 2-3 radicibus robustis descendentibus usque ad 10 cm longis et radicibus tenuioribus longioribusque, in vetustis tuberculo elongato crassiore cylindraceo 3.5-4.5 cm diametro usque 6-7 cm longo distale obtuso, radiceo. Gemma apicalis dense adpresseque albo-villosa.

Folia parva angusta, coriacea crassiuscula in vivo, 6-15 cm tota longitudine. Lamina 4-13 cm longa 4-11 (-13) mm lata (indumento emoto) ratio 8-10 (-14):1, sessilis oblanceolato-linearis sursum in apicem acutum vel subacutum attenuata, basim versus paulo attenuata, circa basim 3-6 mm minima latitudine, et in vaginam leviter ampliata producta, margine integerrima revolutaque,

adaxiale enervata sed leviter bullato-reticulata; abaxiale costa prominenti mediale sulcata, nervis secundariis prominulis in angulo acuto, 30° ascendentibus vel fere obsoletis, nervis minoribus prominente reticulatis alveolis ovalibus profundis cum pilis tenuissimis candidissimis floccosis repletis, reliqua pilis 3-6 mm, basi contortis ceterum rectiusculis antrorsis vestimento denso albo-villoso in sicco plus minusve ochroleuco omnino tecta; adaxiale indumento denso pilis crassioribus basi patula supra geniculato-angulatis cetera parte rectiscula antrorsis aspectu paralleliter subadpresse villosis; in vetustis extremis pilorum patulis paulo intricatis leviter lanugineis; circa basim costa longe triangulato-dilatata utrinque glaberrima viridique. Vagina oblonga, vel utrinque leviter attenuata 12-15 (-20) mm longa 4-8 (-9) mm lata, nervata, utroque latere glaberrima.

Inflorescentiae axillares scaposae monocephalae, 1-10 in rosula coetaneae foliis saepe triplo vel multo longiores, erectae vel curvato-ascendentes. Scapi 20-45 cm longi teneri vel mediocres teretes leviter striolati fistulosi indivisi rarissime ramusculo uno laterali capitulifero, duobus paribus foliorum oppositorum sterilium supra basim valde approximatis, vel bene separatis et sursum 1-5 foliis bracteiformibus sparsis praediti. Folia infima opposita 0.5-2.5 cm supra basim nascentia, 2.5-5.5 cm longa, vaginis membranaceis 1.5-2.5 cm longis inferne in tubum 0.5-2 cm coalitis, alterum par simile vel breviora valde proximam, 1-3 cm distante vel cum internodio usque ad 20 cm longo separatum. Folia bracteosa parca sparsa 2-1 x 0.4-0.2 cm, sursum decrescentia linearia subacuta antrorsa ad axem saepe subadpressa. Indumentum scaporum bractearumque dense intricato-lanatum crassiusculum praecipue sursum brunescens, inferne ad basim et intra vaginam dense albo-villoso-sericeo-barbatum pilis 6-12 mm longis strictis antrorsis inter folia adpressis, sed propria basi conica acuta glabra. Vaginae foliorum proximalium amplae adaxiale glabrae venosaeque abaxiale antrorse villosae.

Capitula mediocria 225-350 (-676) flores ferentia, ligulis amotis 20-26 mm diametro circulo ligularum 24-35 mm, disco 12-16 mm diametro. Involucrum cupulatum 10-14 mm altum crasse denseque ferrugineo-lanatum. Phyllaria sterilia 14-22, exteriora 10-9 (-7) x 2-1.4 mm, linearia vel oblanceolato-linearia, triangulata, subite acutata intus 3-nervata costa conspicuissima, transverse reticulata, abaxiale longe denseque lanata, interiora 9-6 x 1.8-1 mm angustiora lineari-triangulata acutaque extus dense villosa-lanata, saepe usque 6-7 interiora additionalia subulata 6-5 x 1 mm. Phyllaria fertilia exteriora 9-6.5 x 1-0.8 mm, lineari triangulata acutaque adaxiale nervoso-reticulata extus lanata vel saepe longe villosa tantum sursum pilis flexuoso-lanatis; interiora 5-4 x 1 mm lineari vel lineari-subulata, scariosa subamplectentes dorso villosa pilis 2-3 mm, costa brunneo-staminea marginibus hyalinis, parvis glandulis 0.01-0.02 mm altis, intima pilis sparsis sursum longe ciliata pilis 1-0.5 mm et sparsis glandulis marginalibus 0.02-0.03 mm. Receptaculum 9-12 mm diametro planum dense hirtum pilis tenuibus acutis erectis albis 1-1.5 (-2) mm longis. Paleae 4.5-5 x 1-1.2 (-1.5) mm, scariosae amplectentes, oblongo-ellipticae, acutatae dorso brunnei-costato

2-3 nervis utroque latere, sursum antrorso-barbato pilis suberectis subacutis ad apicem 0.5-1 mm et glandulis marginalibus 0.02-0.03 mm.

Flores radii ligulati 3-6-seriati, 100-180 (-346) in capitulo. Corolla lutea 8-11 (-15) mm longa, tubulo angusto 1-1.6 (-2.3) mm, apice interiore annulare incrassato, adaxiale interdum dente apicali minimo obsito, vel interdum adaxiale exciso, dense intricato-pilosulo pilis curvato-ascendentibus ad 0.6 mm subobtusis vel subacutis et sursum parcissimis glandulis breviter capitato-pediculatis 0.03 mm interspersis, lamina membranacea lineari vel oblanceolato-lineari 1-1.9 mm lata apice obtusa et brevissime obtuseque 2 (-3)-denticulata vel integra, 4-5 nervata nervis duobus magis notatis, adaxiale minutissime mamillato-papillosa velutina, abaxiale supra basim sparse pilosa et parcissimis glandulis reliqua glabra. Stylus 4.5-5 mm crassus ramis subulatis 1 mm. Achaenia exteriora 1.3-1.4 x 0.8-1 mm, elliptico-obovata, 5-nervata, 3-angulata, interiora ellipsoide oblonga 4-angulata, omnia utrinque obtusa.

Flores disci 125-180 (-380) in capitulo. Corolla lutea 4.5-5 (-6) mm longa, tubulo 1.5-2 mm, sursum parvis vel parcissimis pilis paulo flexuosis 0.2-0.6 mm, limbo crasse tubuloso sursum paulo ampliato glabro vel basi parcissimis pilis, lobis triangularibus 0.7-1 mm altis, marginibus incrassatis adaxiale densissime papillosis, extus glabris vel 1-3 pilis 0.3-0.5 mm interdum raris glandulis globosis subsessilibus. Antherae 1.7-2 mm basi breviter sagittatae appendice apicali ovato-oblonga obtusa 0.3-0.4 mm longa. Stylus 4-5 mm apicem versus dilatatus breviter papilloso-pilosus apice subconico minute papilloso. Nectarium tubulosum crassiusculum, 0.5-0.6 mm apice 5-dentatum. Ovarii rudimentum breve pediciforme 0.2 mm altum.

Typus: Venezuela, Trujillo: La Morita, Paramito, cresta arriba de La Capilla, between Tuñame and Jajó, 3000 m, acaulirrosuleto, roseta foliar 25 cm diam., 15 cm alta, capitulos erectos o nutantes, ligulas amarillas, 13 Jul 1971, Ruiz-Terán & López-Figueiras 2204; holotypus, US; isotypus, MERF. Same locality, 3300 m, acaulirrósula, hojas verdoso blanquecinas haz, lanoso-sericeas envés, ligulas amarillas, 29 Oct 1969, Cuatrecasas, Ruiz-Terán & López Figueiras 28186, paratypi US, MERF. Other collections from the same region are: Ruiz-Terán & López-Figueiras 2202, 2154; Ruiz-Terán 8996; Aristeguieta & Medina 3450, 3451; Hanbury-Tracy 238; from the region of Niguitao and Páramo de Cabimbú: Jahn 151; Ruiz-Terán 2220; Ruiz-Terán & López-Figueiras 2220, 2221; Cuatrecasas, Ruiz-Terán & López-Figueiras 28199; López-Figueiras 11881, 11885, 11886, 11887, 11889, 11890, 11891, 11893.

Espeletia nana is closely related to *E. weddelli* and its other allies. A key follows to distinguish the six Venezuelan species involved in this group. Hybrid forms which frequently occur between some of these species and *E. schultzei* Wedd. when they grow together are not considered in the key.

Key to the small, sessile Venezuelan species of Espeletia.

- 1 Vagina foliorum sicut parte proximali costae utrinque glabra. Scapi monocephali.
 - 2 Scapi aphylli, tantum sursum distale 1-2 bracteis brevibus oppositis vel alternis, dense crasseque albo-floccoso-lanati. Lamina foliorum lineari-spatulata dense floccoso-gossypina, ad apicem obtusum indumento albo crassiore. Involucrum crasse albo-gossypinum visu subglobosum ligulas excedens, 20-30 mm latum. E. tenorae Aristeg.
 - 2' Scapi foliati bracteatique, 1-3 paribus foliorum oppositorum circa basim longe tubuloso-vaginantibus, sursum bracteis brevibus parvis vel raris alternis vel absens; indumento lanato ferrugineo vel brunneo. Saepe ligulae involucro longiores.
 - 3 Laminae foliorum adpressissime argenteo-sericeae, pilis rectis antrorsis 1-1.5 mm. Involucrum crasse ochraceo vel ferrugineo-lanatum cupulato-turbinatum, 20 mm latum. . . E. marthae Cuatr.
 - 3' Laminae foliorum albo-villoso-lanatae, pilis plus minusve flexuosis vel contortis 3-6 mm longis. Involucrum rotundato-cupulatum crasse ochraceo vel ferrugineo-lanatum, 20-26 mm latum. E. nana Cuatr.
- 1' Vagina foliorum abaxiale dense barbata.
 - 4 Laminae foliorum utrinque crasse sed molle crispo-lanatae visu teretes praecipue juveniles, lineares deorsum non vel parum angustatae, 12-25 x 0.9-1.5 cm indumento incluso; pili crispipatuli vestitura alba cribrosa laxa molle utrinque uniformiter crassa insuper tenuiter arachnoidea instructi, in sicco roseata vel ferruginea. Scapi saepe monocephali interdum 2-3-cephali, pare uno foliorum supra basim (rare duobus) et 6-12 foliis sparsis linearibus obtusis sursum gradatim minoribus et sicut axis crasse terete lanatis. Capitula 24-32 mm lata ligulis amotis. E. ulotricha Cuatr.
 - 4' Laminae foliorum longe villosae vel lanatae lineares vel oblongo-oblancoolatae visu planae indumento in sicco albo. Scapi 2-3 paribus foliorum oppositorum longe tubuloso-vaginantibus.
 - 5 Laminae foliorum lineares vel leviter oblanceolato-lineares acutiusculae adaxiale dense antrorso-villosae abaxiale laxe lanuginosae ad costam insuper subsericeo-villosae, 5-12(-18) x 0.3-0.8(-1) cm (indumento amoto). Scapi teneri 2-5-capitulis (rare aliqui monocephali) brevibus, involucro villosolano semigloboso, 14-20(-25) mm diam. E. weddellii Schultz Bip.
 - 5' Laminae foliorum latiores oblongae vel oblanceolato-oblongae

vel spatulatae, obtusae vel subobtusae dense longiusque lanatae et lanato-barbatae, 6.5-15 x 0.8-2 cm (indumento amoto). Scapi monocephali mediocres vel robusti, dense albo-lanati ad apicem crassiore albo-lanati. Involucra subglobosa crasse lanata 20-30 mm diam. E. batata Cuatr.

PARAGYNOXYS URIBEI Cuatr. sp. nov.

Arbuscula 3-4 m alta ramis ochraceis vel fulvescentibus subcylindraceutis striatis, breviter sed dense adpresseque pulverulentotomentosis pilis irregulariter brachiatis acutis valde intricatis 0.2-0.5 mm longis.

Folia alterna ampla rigide crasseque coriacea longe petiolata. Lamina adulta 34 x 16-18 x 8 cm, ovata vel elliptico-ovata basi late rotundata vel obtusa apicem versus gradatim attenuata acuta, margine anguste revoluta integra vel rare parcis dentibus remotissimis brevibus callosis; adaxiale viridis vel lutescenti-viridis, costa plana angusta adpresse tomentulosa excepta glabra; abaxiale costa elevata robusta sulcato-striata dense adpresseque tomentosa, nervis secundariis prominentibus tomentosis, 12-13 utroque latere, proximalibus patulis, distalibus patulo-ascendentibus, supra medium furcatis prope marginem evanescentibus, alteris nervis minoribus laxe prominuleque reticulatis, superficie moderate vel laxe lanugineo-tomentosa indumento ochraceo vel fuscescenti, pilis irregulariter brachiatis, tortuosis vel crispis intricatis, 0.1-0.6 mm, copiosis partiale tecta. Petiolus robustus 6-13 cm longus argute striatus, basi incrassato-dilatata vaginanti, dense adpresseque brevi-tomentosus. Inflorescentiae late paniculatae subthyrsiformes vel rotundatae floribundae, 20-30 cm amplae. Axi ramiq ue ascendentes striati adpresse ochraceo-tomentulosi, ramusculi complanati striatique magis patuli et congesti etiam tomentulosi. Bractee subtendentes proximales foliosis sed valde breves petiolatae, 8-4 x 2-0.6 cm, mediales sequentes lineares sursum longitudine decrescentes 20-3 mm longae 1 mm latae omnes tomentulosae. Pedicelli angulati rigidi 1-5 mm longi, ad apicem 3-6 bracteolis anguste linearibus acutis tomentellis 1.5-2.5 x 0.5 mm, tomentellis ad modum brevis calyculi irregularis infra capitulum dispositis.

Capitula homogama discoidea maturitate 11-12 mm longa. Involucrum 7.5-8 mm altum quam flores brevius, cylindraceutum base paulo attenuatum 8 phyllariis subuniseriatis. Phyllaria subcoriacea rigida interiora 7-7.3 x 3 mm elliptica dorso crasso tomentoso-lanuginosa marginibus membranaceis glabrisque apice subite acutato, exteriora (3) oblonga sursum subacutato-attenuata crassa carnosula dense lanuginoso-tomentosa pilis irregulare brachiatis intricatis 0.2-0.4 mm longis. Receptaculum 1.6-1.8 mm diam. alveolatum minute dentatum.

Flores hermaphroditi 10-11 (-12) in capitulo. Corolla alba glabra 8.2-9 mm longa, tubulo carnosulo (3.5-) 4 mm longo in 5 laciniis lineares usque ad 1 mm supra basim partito. Lacinae 3-3.5 mm longae 0.5 mm latae apice angustato subacuto sed callosocrassato et papillosulo, maturitate bene revolutae, venis margi-

nalibus et mediali bene notatis. Antherae 2.5 mm longae basi caudatae caudiculis acutis 0.4-0.5 mm longis, appendice apicali oblonga attenuata obtusiuscula circa 0.4 mm longa. Cellulae endotheciales oblongo-hexagonales nodulis polaribus. Grana pollinis 0.03-0.035 mm. Collum coniectivi cylindricum filamentum leviter crassius. Stylus circa 10 mm, basim incrassatum supra discum brevem affixus, ramis circa 2.5 mm longis valde revolutis, complanatis adaxiale duobus lineis stigmaticis marginalibus valde crassis confluentibus, abaxiale densiuscule papilloso-pilosulis distale leviter attenuatis apice subacuto papilloso papillis centralis longioribus circa 0.15 mm. Discus denticulatus circa 0.3 mm altus. Ovarium fertile 2.5-2.8 mm oblongum basim versus attenuatum, plus minusve triangulatum, 10-nervatum apice paulo dilatato cum pappo coronato. Pappus 7-8 mm longus stramineus setis rigidis scabridis biseriatis basi coalitis.

Typus: Colombia, Boyacá: Arcabuco, 4 km NE of town, margins of secondary forest, 2700 m, arbusto 2-2.5 m, envés foliar con denso tomento ocre, inflorescencias blancas, 8 Jun 1966, Lorenzo Uribe-Urbe 5633; holotypus US, isotypus COL. Id, Cerro Berlín, entre Arcabuco y La Palma, entre bosque andino degradado, antiguo camino de herradura 2800-2780 m, arbolito 3.5 m, ramillas sepias, hojas verde amarillento haz, verdoso-ocráceas envés, inflorescencias en capullos verdoso-ocracea, 28 Mar 1973, Cuatrecasas, Garcia-Barriga & Jaramillo 28675 (COL, US).

Paragynoxys uribei is the species known with the highest number of flowers per capitulum, 10-11 (-12) with constant number of 8 phyllaries. *Paragynoxys neodendroides* has not more than 9 flowers and 5-6 phyllaries; this species and its closely related *P. santurbanensis* with heads of 8 phyllaries and equal number of flowers differ from the new species by their thick coriaceous leaves covered by thick lanate indument and by the larger size of the flowers. The ovate or elliptic-ovate shape with rather sparse tomentum of its blades combined with the nature of the heads distinguish *P. uribei* from all other species of the genus.

PARAGYNOXYS STEYERMARKII Cuatr. sp. nov.

Arbuscula 3 m alta caule simplici distale paulo breviterque ramuloso. Ramuli costato-angulati breviter adpresseque griseo-lanuginoso-pulverulenti, pilis irregulariter brachiatis crassiusculis intricatis 0.1-0.5 mm longis. Folia alterna rigide crasseque coriacea petiolata. Laminae 9-15 cm longae 4-7 cm latae obovato-ellipticae apice obtusae basi cuneatae, margine planae vel leviter revolutae leviter obtusissimeque sinuatae vel subintegrae sed dentibus mucroniformibus callosis remotis conspicuis, adaxiale virides glabrae costa impressa ceteris nervis in sicco obsoletis, abaxiale pallide virides costa robusta prominenti deorsum adpresse griseo-tomentosa pilis intricatis valde adpressis tecta, nervis secundariis prominentibus 9-11 utroque latere ascendentibus distale furcatis, alteris nervis minoribus in reticulum laxum prominulum anastomosatis, superficie visu nitidula subglabra sed pilis brachi-

atis crassiusculis patulis copiosis sparse munita. Petioli 12-30 mm longi rigidi angulato-striati tomentulosi.

Inflorescentiae floribundae paniculati-corymbiformae circa 20 cm amplae tantum basi foliatae ceterae bracteatae. Rami ramusculique alterni argute striati, dense adpresseque pulverulento-tomentosi, pilis crassiusculis minutis informe irregulariterque brachiatistecti. Bracteae proximales breve subfoliaceae oblongo-spathulatae basi petioliformi, 25-15 x 4-2 mm, mediales et distales gradatim breviores lineari-triangulares acutae 4-1 mm longae, omnes tomentulosuli. Pedicelli breves angusti rigidi angulati pilosuli 2-5 mm longi ad apicem 3-4 bracteolis minutis anguste triangularibus acutis tomentulosis, 1-1.5 (-2.5) mm longis ad modum calyculi infra capitulum dispositis.

Capitula homogama discoidea maturitate 13-15 mm longa. Involucrum 8.5-10 mm altum quam flores multo brevius, cylindraceum base cuneato-attenuatum, 5 phyllariis subuniseriatis. Phyllaria subcoriacea rigida pallide viridia apicibus purpureis, oblongo-elliptica et elliptica, apice leviter attenuata subobtusata breviterque barbيلاتo-ciliolata reliqua glaberrima, 8.5-9.5 mm longa, exteriora 2 mm lata interiora marginibus tenuioribus 3 mm lata.

Flores hermaphroditi 5-6 in capitulo. Corolla alba apicibus purpureis glabra 11-12.5 mm longa, tubulo carnosulo 6 mm longo rigido angusto sursum gradatim angustato apice paulo constricto, 5-nervato; limbo in 5 lacinias lineares 5.5 mm longas 0.5 mm latas apice acuto brevissime papilloso linea media dorsali notata, in adulta valde revolutas seu circinatas usque circa basin partito. Antherae 3.5 mm longae basi longe sagittatae, appendice apicali oblongo attenuata 0.7 mm longa, maturitate exsertae cellulis endothecialibus hexagonale oblongis nodulis polaribus. Grana pollinis 0.03-0.035 mm. Stylus circa 12 mm, deorsum gradatim dilatatus inferne valde incrassatus, ramis subcomplanatis crassiusculis circa 5 mm longis circinatis, adaxiale crasse papilloso-stigmatiferis mediale leviter sulcatis, abaxiale copiose papilloso-pilosulis, apice paulo attenuato subacutato breviter pilosulo coronato. Discus margine minute denticulatis circa 0.2 mm altus. Ovarium 3 mm longum plus minusve conspicue 10-nervatum plerumque 6-costatum et plus minusve adpresse 3-angulatum, basim versus attenuatum apice marginatum cum pappo coronatum. Pappus stramineus pilis rigidulis biseriatis scabridis basi coalitis 8-9 mm longis.

Typus: Venezuela, Táchira: between Las Copas and Alto de Fila de Tierra Negra at the ridge dividing headwaters of rivers Quinimari, Riofrio, Uribante and Talco (Oirá), 2870-2880 m; simple-stemmed woody plant 3 m, leaves coriaceous deep green above pale silvery green below with gray-brown midrib, inflorescences branches brown, involucre green, corolla white, the tips purplish, 16 Jan 1968, J.A. Steyermark, G.C.K. & E. Dunsterville 101014; holotypus, US; isotypus, VEN.

Paragynoxys steyermarkii is closely related to *P. venezuelae* from which it differs by the larger heads and longer flowers, by its glabrous involucre and by the leaves which are smaller, rather obovate, rounded at apex and cuneate at base.

MALPIGHIA ALBIFLORA (Cuatr.) Cuatr. comb. nov.

Stigmaphyllon albiflorum Cuatr., Ciencia (Mex.) 23(4): 139, fig. 1: H, I, J. 1964. Subsequent study and closer examination of more flowers of the type collection proved that the species belongs to Malpighia instead of Stigmaphyllon where it erroneously was placed.